

## ABSTRACT

At the time of coding input image and audio data, and decoding coded video and audio data by using a computer, the amount of computation required per unit time becomes enormous, whereby it has been very difficult to carry out coding and decoding in real time.

As for coding methods in accordance with the present invention, a first method is a method wherein signal format conversion, orthogonal transform and variable-length coding are carried out continuously with predetermined small areas in a frame used as units, and the number of memory access times is decreased, whereby high-speed processing is attained. A second method is a method wherein orthogonal transform computation is omitted by using orthogonal transform coefficients, whereby processing time is shortened. A third method is a method wherein, in additions and subtractions used for orthogonal transform and the like, the number of registers to be used is decreased, and the number of memory access times is reduced, whereby high-speed processing is attained. The decoding method in accordance with the present invention is a method wherein, in variable-length decoding, table size is not made larger, the number of table access times per code word is set to 2 at the maximum, and plural code words are decoded by one table access operation, whereby high-speed decoding is

attained.